

We claim:

~~Patent Claims~~

1. Method for establishing a route (LW) via a communication network (ATM-KN) comprising a plurality of network nodes (NK) connected to one another, characterized in that

5 a connection setup message (R) containing a destination and a source address (L3-DA; L3-SA) is communicated to a network node (NK) proceeding from a source communication terminal device (U-KE);

the network node (NK) enters the network address (L3-NK) allocated to it in the communication network (ATM-KN) into the connection setup message (R);

10 a network node (NK) receiving the connection setup message (R) forwards this to at least one neighboring network node (NK);

the connection setup message (R) is forwarded to a destination communication terminal device (Z-KE) upon reception of the connection setup message (R) at a destination node (ZNK) identifiable with the assistance of the destination address (L3-

15 DA); and in that

a confirmation message (E) is returned to the source communication terminal device (U-KE) on the route (LW) defined by the source address (L3-SA) and by the entered network node addresses (L3-NK), whereby a switching information for messages to be subsequently transmitted between the source and the destination communication

20 terminal device (U-KE; Z-KE) is deposited in the network nodes (NK) that are traversed.

2. Method for establishing a route (LW) via a communication network (ATM-KN) comprising a plurality of network nodes (NK) connected to one another, characterized in that

25 a connection setup message (R) containing a destination and a source address (L3-DA; L3-SA) is communicated to a network node (NK) proceeding from a source communication terminal device (U-KE);

the network node (NK) enters the network address (L3-NK) allocated to it in the communication network (ATM-KN) into the connection setup message (R);

30 a network node (NK) receiving the connection setup message (R) forwards this to at least one neighboring network node (NK);

09720961-010301

upon reception of the connection setup message (R) at a destination node (ZNK) identifiable with the assistance of the destination address (L3-DA), a confirmation message (E) is returned to the source communication terminal device (U-KE) on the route (LW) defined by the source address (L3-SA) and by the entered network node addresses (L3-NK), whereby a switching information for messages to be subsequently transmitted between the source and the destination communication terminal device (U-KE; Z-KE) is deposited in the network nodes (NK) that are traversed.

3. Method for establishing a route (LW) via a communication network (ATM-KN) comprising a plurality of network nodes (NK) connected to one another, characterized in that

a connection setup message (R) containing a destination and a source address (L3-DA; L3-SA) is communicated to a network node (NK) proceeding from a source communication terminal device (U-KE);

the network node (NK) enters the network address (L3-NK) allocated to it in the communication network (ATM-KN) into the connection setup message (R);

a network node (NK) receiving the connection setup message (R) forwards this to at least one neighboring network node (NK);

the connection setup message (R) is forwarded to a destination communication terminal device (Z-KE) upon reception of the connection setup message (R) at a destination node (ZNK) identifiable with the assistance of the destination address (L3-DA); and in that

a confirmation message (E) is returned to a source network node (UNK), to which the source communication terminal device (U-KE) is allocated, on the route (LW) defined by the source address (L3-SA) and by the entered network node addresses (L3-NK), whereby a switching information for messages to be subsequently transmitted between the source and the destination communication terminal device (U-KE; Z-KE) is deposited in the network nodes (NK) that are traversed.

4. Method for establishing a route (LW) via a communication network (ATM-KN) comprising a plurality of network nodes (NK) connected to one another, characterized in that

a connection setup message (R) containing a destination and a source address (L3-DA; L3-SA) is communicated to a network node (NK) proceeding from a source communication terminal device (U-KE);

the network node (NK) enters the network address (L3-NK) allocated to it in the communication network (ATM-KN) into the connection setup message (R);

a network node (NK) receiving the connection setup message (R) forwards this to at least one neighboring network node (NK);

upon reception of the connection setup message (R) at a destination node (ZNK) identifiable with the assistance of the destination address (L3-DA), a confirmation

message (E) is returned to a source network node (UNK), to which the source communication terminal device (U-KE) is allocated, on the route (LW) defined by the source address (L3-SA) and by the entered network node addresses (L3-NK), whereby a switching information for messages to be subsequently transmitted between the source and the destination communication terminal device (U-KE; Z-KE) is deposited in the network nodes (NK) that are traversed.

5. Method according to one of the preceding claims, characterized in that the source communication terminal device (U-KE) communicates the connection setup message (R) to a source network node (UNK) via which the source communication terminal device (U-KE) is connected to the communication network (ATM-KN).

6. Method according to one of the preceding claims, characterized in that a network node (NK) receiving the connection setup message (R) forwards this only to the network node (NK) connected to it whose network node address (L3-NK) is not entered in the received connection setup message (R).

7. Method according to one of the preceding claims, characterized in that the network node (NK) receiving the connection setup message (R) forwards this to the network nodes connected to it only when the plurality of network nodes (NK) traversed by the received connection setup message (R) is lower than an adjustable limit value.

8. Method according to one of the preceding claims, characterized in that, in instances wherein a plurality of connection setup message (R) are received at the

09720961.010301

destination communication terminal device (Z-KE), one of the received connection setup messages (R) is selected on the basis of prescribable criteria; and in that a corresponding confirmation message is returned only for the selected connection setup message (R).

5 9. Method according to claim 8, characterized in that only connection setup messages (R) that arrive within a prescribable time span after reception of a first connection setup message (R) at the destination communication terminal device (Z-KE) are considered for a selection.

10 10. Method according to claim 8 or 9, characterized in that the selection of a connection setup message (R) ensues dependent on the plurality (n) of network nodes (NK) traversed on the route (LW) defined by the connection setup message (R).

11. Method according to one of the claims 8 through 10, characterized in that the selection of a connection setup message (R) ensues dependent on the costs incurred on the route (LW) defined by the connection setup message (R).

15 12. Method according to one of the claims 8 through 11, characterized in that the selection of a connection setup message (R) ensues dependent on the transmission capacity made available on the route (LW) defined by the connection setup message (R).

20 13. Method according to one of the preceding claims, characterized in that a transmission of the connection setup message (R) or, respectively, of the confirmation message (E) between neighboring network nodes (NK) ensues via a specific connection provided exclusively for a transmission of the connection setup or, respectively, of the confirmation message (R; E).

25 14. Method according to claim 13, characterized in that at least one channel (VC) of a connecting line between two neighboring network nodes (NK) is reserved for the specific connection.

30 15. Method according to one of the preceding claims, characterized in that the  $i^{\text{th}}$  network node (NK) receiving the connection setup message (R) enters the network node address (L3-NK) allocated to it in the communication network (ATM-KN) into an address field of an  $i^{\text{th}}$  address pair field (HOP-AP) of the connection setup message (R).

09720961 010301  
FOEFO T960260

16. Method according to claim 15, characterized in that the network node address (L3-NK) is the layer-3 address of the network node (NK) according to the OSI reference model (Open Systems Interconnection).

5 17. Method according to claim 15 or 16, characterized in that the  $i^{\text{th}}$  network node (NK) receiving the confirmation message (E) enters the layer-2 address (L3-NK) allocated to it in the communication network (ATM-KN) according to the OSI reference model into a further address field of the  $i^{\text{th}}$  address pair field (HOP-AP) of the confirmation message (E).

10 18. Method according to one of the preceding claims, characterized in that, upon reception of the confirmation message (E) in a network node (NK), a switching information is deposited that sets which input of the network node (NK) is linked to which output of the network node (NK) for a bidirectional message communication between the source and the destination communication terminal device (U-KE; Z-KE).

15 19. Method according to claim 18, characterized in that the switching information is deleted after a prescribable time span wherein no messages were transmitted between the source and the destination communication terminal device (U-KE; Z-KE).

Add A9